

RUTGERS

Center for Advanced Infrastructure
and Transportation

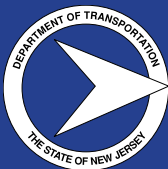


New Jersey Department of Transportation

10th ANNUAL NJDOT

RESEARCH SHOWCASE

OCTOBER 16, 2008



The Conference Center at Mercer
1200 Old Trenton Road
West Windsor, NJ 08550

RESEARCH SHOWCASE

OCTOBER 16, 2008

Location:

The Conference Center at Mercer
1200 Old Trenton Road
West Windsor, NJ 08550

Directions and Map:

http://www.mccc.edu/cc/contact_direction.shtml

Parking:

Park in lot to the side of the Conference Center

AGENDA

8:00–9:00 a.m. **Registration with continental breakfast**

9:15 a.m. **Welcome**

Camille Crichton-Summers, *Manager*
NJDOT Bureau of Research

Opening Remarks

Steven Dilts, *Deputy Commissioner*
New Jersey Department of Transportation

Dennis Merida, *Division Administrator*
Federal Highway Administration, New Jersey Division

Robert M. Miller, *Assistant Commissioner*
NJDOT Planning and Development

Ali Maher, Ph.D., *Director*
Rutgers' Center for Advanced Infrastructure and Transportation

Invited Legislators

Congressman Rush Holt, 12th Legislative District of New Jersey

Congressman Bill Pascrell, 8th Legislative District of New Jersey

Assemblyman Vincent Prieto, 32th Legislative District of New Jersey

Senator Nicholas J. Sacco, *Chair*
Senate Transportation Committee

Senator Fred H. Madden, *Vice-Chair*
Senate Transportation Committee

Assemblywoman Linda Stender, *Vice-Chair*
Assembly Transportation Committee

10:15 a.m.

Overview of NJDOT Research Implementation Study

Camille Crichton-Summers

10:30 a.m.

Break

10:45 a.m.

Plenary Session, Research and Technology Transfer

Paul Tremont, Turner-Fairbank Highway Research Center
Human Centered Systems Laboratory

Clark Martin, Federal Highway Administration
Office of Corporate and Professional Development

11:45 a.m.

Networking and Poster Session

12:00 p.m.

Luncheon

New Jersey Department of Transportation Student

Research Awards presented by Brent Barnes

Director, NJDOT Systems Planning and Research

Technology Transfer Implementation Award presented by
Camille Crichton-Summers, *Manager*, NJDOT Bureau of Research

1:15 p.m.

Breakout Sessions, led by members of NJDOT

Multimodal/Intermodal Programs

Congestion/ITS

Project Management, Asset Management, and Capital Planning

Infrastructure and Bridge Preservation

Safety

Environment

ACADEMIC RESEARCH PARTNERS

New Jersey Institute of Technology

Princeton University

Richard Stockton College

Rowan University

Rutgers, The State University of
New Jersey

Stevens Institute of Technology

The College of New Jersey

University Transportation Research
Center Consortium

Members of the UTRC Consortium

City University of New York*

Columbia University

Cornell University

New Jersey Institute of Technology

New York University

Polytechnic University

Rensselaer Polytechnic Institute

Rowan University

Rutgers, The State University of New Jersey*

State University of New York

Stevens Institute of Technology

University of Puerto Rico–Mayagüez

**USDOT University Transportation Centers*

REGISTRATION FORM

Registration deadline October 10, 2008

Due to limited seating, registration is first come, first served.

Mail or fax registration to:

CAIT-NJ LTAP

Rutgers, The State University of New Jersey
100 Brett Road • Piscataway, NJ 08854-8058
Fax: 732-445-5636 or 732-445-3325
Attn: Ruth Gacser

Or fill out this PDF form and email to:

jljeli@rci.rutgers.edu

Or register online at:

<http://ltap.rutgers.edu/training>

Name

Title

Organization

Street Address

City, State, ZIP

Work Phone

Work Fax

Email

☐ Check here if you would like a vegetarian meal

10th Annual NJDOT Research Showcase Schedule

9:15 – 9:45 a.m. Opening Remarks Session ~ Auditorium

- Welcome
Camille Crichton-Summers
Manager, Bureau of Research
New Jersey Department of Transportation
- Opening Remarks
- Stephen Dilts
Deputy Commissioner
New Jersey Department of Transportation
- William J. Hoffman
Technology Team Leader
Federal Highway Administration, New Jersey Division
- Robert M. Miller
Assistant Commissioner, Planning and Development
New Jersey Department of Transportation
- Patrick J. Szary
Associate Director
Center for Advanced Infrastructure and Transportation, Rutgers University

10:15a.m. NJDOT Research Implementation Study

- Camille Crichton-Summers
Manager, Bureau of Research
New Jersey Department of Transportation

10:30a.m. Break

10:45a.m. Plenary Session

- Clark Martin
Affiliate Programs Team Leader, Office of Professional and Corporate
Development, Federal Highway Administration
- Paul Tremont, Ph.D.
Manager, Turner-Fairbank Highway Research Center, Human Centered
Systems Laboratory

Clark Martin is the Team Leader for the Affiliate Programs Team for the Office of Professional and Corporate Development (OPCD) of the Federal Highway Administration. The Affiliate Programs Team is primarily responsible for the Local Technical Assistance and Tribal Technical Assistance Programs - LTAP and TTAP; strategic and policy development for transportation workforce development, education and training; assisting the FHWA Office of International Programs with international transportation technology transfer activities; and as the lead FHWA office for the University Transportation Centers Program.

The LTAP/TTAP Program includes 58 technology transfer centers, one in each state, Puerto Rico and seven Regional Tribal Technical Assistance Centers. The LTAP/TTAP Centers develop and conduct training, and professional development programs to address local agency, and tribal government needs and in some instances, state DOT training interests. In the workforce development area, Mr. Martin works with transportation and education organizations for improved programs and policies, and to encourage partnerships that will provide for a skilled, technically competent workforce to deliver the Nation's highway program now and for the future.

Mr. Martin has been involved with highway transportation throughout his career having served as Director of Safety for the American Trucking Associations (ATA) and Executive Director of the ATA Council of Safety Supervisors. He also served as the National Coordinator for the American Association of Motor Vehicle Administrators (AAMVA) for the implementation of the Commercial Driver License Program and as AAMVA Director of Motor Carrier Services. Mr. Martin has a Bachelor of Science degree from the University of Maryland with a major in government and politics.

Paul Tremont is research psychologist with a specialty in the experimental analysis of behavior. He has worked for the Department of Defense at the US Army's Logistics Center, Intelligence School, Signal School, and Aviation Center. He most recently worked at the National Highway Traffic Safety Administration (NHTSA) with a focus on crash causation studies. Since 2008, he has worked at FHWA's Turner Fairbank Research Center with a focus on human factors issues related to novel intersection designs, and the use of infrastructure and in-vehicle based warnings to drivers at risk of intersection collisions. Paul Tremont is currently the manager of the Human Centered Systems Laboratory within the Office of Safety Research and Development at the Federal Highway Administration's (FHWA) Turner Fairbank Highway Research Center in McLean, VA. He holds a Ph.D in Experimental Psychology from the City University of New York.

12:00 p.m.

Luncheon ~ Atrium

Outstanding University Student in Transportation Research Awards

To be presented Brent Barnes, Director of NJDOT Division of Statewide Planning:

Mr. Vivek Jha, Rowan University

Vivek Jha, a graduate student in the Department of Civil Engineering at Rowan University, is specializing in Transportation Engineering. He has been working on two projects sponsored by the New Jersey Department of Transportation and the Rhode Island Department of Transportation, respectively. His work in the first year on Rhode Island DOT has lead to the recommendations to the state of Rhode Island on ways of mitigating fatigue cracking. He is currently working on a similar task of evaluating fatigue cracking for the state of New Jersey as part of the Pavement Catalog project. Vivek Jha led the effort of developing the Pavement Catalog for the state of New Jersey along with the undergraduate student Edward Saridaki. Vivek and Edward gave a presentation to the NJDOT on the Pavement Catalog in September 19th 2008. Mr. Jha has published two papers and one Transportation Research Board paper is under review. He has maintained a GPA of 3.88 during the course of the study and is a suitable candidate for the award.

Mr. Guangyong Liu, City College of New York, University Transportation Research Center

Mr. Liu is currently a Ph.D. student at the City College of New York with Professor Anil K. Agrawal. Prior to joining the City College of New York, Mr. Liu received his M.S. Mechanical and Aerospace Engineering from the University of California, Irvine. Mr. Liu has been working on the New Jersey Department of Transportation project "Seismic Design Considerations" to develop seismic guidelines for existing bridges on New Jersey. Mr. Liu has a very strong background in solid mechanics and modeling of complex structural systems. For his Ph.D. research, Mr. Liu has been working on the "development of multi-hazard blast, seismic and vehicle impact guidelines for highway bridges". This is a highly complex and urgently needed guideline for design of sustainable highway bridge systems in the country. This is a cutting edge research that is being led through the sponsorship of NJDOT and UTRC.

Mr. Ali Rezvani, Center for Advanced Infrastructure and Transportation, Rutgers University

Mr. Rezvani is currently a Ph.D. student at Rutgers, The State University of New Jersey in the Industrial and Systems Engineering Department with Professor Mohsen Jafari, Ph.D. During his time there, Mr. Rezvani earned his M.S. in Industrial Engineering and has developed a solid background in deterministic and stochastic optimization model development. Mr. Rezvani was able to leverage these abilities to help develop Plan4Safety, a decision support tool now used by NJDOT and all local stakeholders interested in crash analysis and safety program development and support. For the final phase in his graduate career, Mr. Rezvani joined the new FHWA Long Term Bridge Performance Program lead by the Center for Advanced Infrastructure and Transportation to write his doctoral thesis on infrastructure asset management. His contributions to this long-term program will enhance knowledge and understanding of how to maximize value and minimize cost over the life of assets. His ability to turn real-world problems into mathematical models is leading the way towards more efficient and higher quality management of the Nation's infrastructure assets.

Mr. Feng-Ming Tsai, New Jersey Institute of Technology

Mr. Feng-Ming (Chuck) Tsai is a Ph.D candidate with the Interdisciplinary Program in Transportation at New Jersey Institute of Technology (NJIT). Since 2002, Chuck has been working on four research projects, including “Identifying Factors and Mitigation Technologies in Truck Accidents in New Jersey”, “Stability and Accuracy of HCM Level of Service in Darkness and Adverse Weather”, and “Development of New Jersey Rates for NJCMS Incident Delay Model”, sponsored by NJDOT, and has demonstrated his dedication and enthusiasm in transportation research. His excellent work performance has been recognized and appreciated by the Principal Investigators of these projects.

Mr. Anil Yacizi, Voorhees Transportation Center, Rutgers University

Anil has contributed significantly to several transportation studies for a variety of clients, including the FHWA, NJDOT and NJ Turnpike Authority. His first joint project with Voorhees Transportation Center (VTC) and Civil Engineering Department was the FHWA /NJDOT project dealing with evaluation of the NJ Turnpike’s and NYNJ Port Authority’s value pricing initiatives. Among other things, he focused on the impacts of value pricing initiatives on transit ridership and contributed to the overall success to these ground breaking projects. Over the past 14 months, Anil has been working on a multi-year study VTC is conducting for the NJ Office of Homeland Security and Preparedness. In this project Anil has brought to bear his extensive knowledge of transportation models to the unique challenge of catastrophic evacuation planning in the very complex transportation environment of northern New Jersey. He approaches the challenge with both tenacity and insight and has helped to shape the direction of the study. His contributions have been both practical in terms of meeting the research objectives of the study and demonstrative in terms of adapting traditional transportation planning tools to the practice of evacuation planning. This year, Anil was one of only four students to be awarded a Rutgers Federal Transit Administration fellowship to support his research in the area of evacuation transportation planning. Anil truly represents a new breed of transportation professionals in training that have sound understanding of both engineering and planning and policy aspects of transportation discipline.

2008 New Jersey Department of Transportation Research Implementation Award
To be presented by Camille Crichton-Summers, Manager of NJDOT Bureau of Research

Please visit the various poster displays around the conference center and the equipment and vehicles just outside the front door, including:

- **Equinox Fuel Cell Vehicle**
- **Jeep Cherokee with non contact skid resistance equipment**
- **Ground Penetrating Radar testing equipment**

About the Fuel Cell Vehicle: The Equinox Fuel Cell (not for sale) is an electric vehicle powered by the GM fourth-generation fuel cell system, GM's most advanced fuel cell propulsion system to date. The electric motor traction system will provide the vehicle with instantaneous torque, smooth acceleration, and quiet performance, with the ability to reach a top speed of 100 mph. In early 2008, Chevy launched a test fleet of hydrogen-powered Equinox Fuel Cell vehicles. This fleet hit the streets of New York City, Washington, D.C., and Southern California. "Project Driveway" is the first large-scale market test of fuel cell vehicles with real drivers in the real world. Why? Because hydrogen fuel cells use zero gasoline and produce zero emissions other than water vapor. They're a sustainable technology for a better environment. And they ultimately reduce our dependence on petroleum. **Green Car Journal** has recognized the Chevy Equinox Fuel Cell with its 2008 Green Car Vision Award, (1) the first time the magazine has recognized a limited production vehicle for its forward-thinking technologies.

For information: Michael S. Paritee, Manager - Hydrogen Fueling Infrastructure
GM Fuel Cell Activities, (914) 419-7091

1:15-3:30 p.m. Breakout Panel Sessions

Multimodal/Intermodal Programs ~ Room 213

Congestion/Intelligent Transportation Systems ~ Room 117

Project Management, Asset Management, Capital Planning ~ Room 216

Infrastructure and Bridge Preservation ~ Room 116

Safety ~ Auditorium

Environment ~ Room 214/215

Multimodal/Intermodal Programs
Moderator: Talvin Davis

1:15 to 3:30 PM ~ Room 213

	Presentation Title	Presentation Speaker
1	Analysis of the Maritime Traffic in the Delaware River and Bay Area	Dr. Tayfur Altiok, Center for Advanced Infrastructure and Transportation, Rutgers University
2	Modeling the Effects of Different Time Shifting Strategies on the Traffic Patterns of a Container Terminal	Dr. Mihalios Golias, Center for Advanced Infrastructure and Transportation, Rutgers University
3	Assessing the Resilience of the Regional Northeast Corridor Road-based Transportation System	Dr. Mo Mansouri, Stevens Institute of Technology
4	Real Time Truck Drayage Data Collection Using GPS Technology	Dr. Mihalios Golias, Center for Advanced Infrastructure and Transportation, Rutgers University

Congestion/Intelligent Transportation Systems
Moderator: Andrew Swords

1:15 to 3:30 PM ~ Room 117

	Presentation Title	Presentation Speaker
1	Deriving Surrogate Safety Measures From Traffic Simulation Models	Dr. Kaan Ozbay, Center for Advanced Infrastructure and Transportation, Rutgers University
2	New York City Congestion Pricing System Research	Brian ten Siethoff, Cambridge Systematics
3	How to Develop and Calibrate Realistic Traffic Simulation Models? Case Studies from Unconventional Traffic Circles to Large Scale Complex Networks	Dr. Bekir Bartin, Center for Advanced Infrastructure and Transportation, Rutgers University
4	FHWA Overview on Analysis, Modeling, and Simulation (AMS) Activities of the Integrated Corridor Management (ICM) Initiative	Dr. Vassilis Papayannoulis, Cambridge Systematics

Project and Asset Management
Moderator: Howard Immordino

1:15 to 3:30 PM ~ Room 216

	Presentation Title	Presentation Speaker
1	Culvert Information Management System	Dr. Thomas Juliano, New Jersey Institute of Technology
2	Developing an Asset Management Framework for the Interstate Highway System	Bill Robert, Cambridge Systematics
3	Performance Management Programs, Insight from Practitioners	Hugh Louch, Cambridge Systematics

Infrastructure and Bridge Preservation
Moderator: Richard Dunne

1:15 to 3:30 PM ~ Room 116

	Presentation Title	Presentation Speaker
1	A Risk Management Based Framework for Valuing Resilience Strategies in Maritime Transportation Systems	Dr. Mo Mansouri, Stevens Institute of Technology
2	Warm Mix Asphalt for New Jersey	Thomas Bennert, Center for Advanced Infrastructure and Transportation, Rutgers University
3	Verification of the Mechanistic Empirical Design Guide for the State of New Jersey	Keicha Muriel, Rowan University
4	Deterioration Rates for Different Bridge Components Using Inspection Data	Dr. Anil Agrawal, University Transportation Research Center, City College of New York
5	Evaluation of Fatigue Cracking Performance of Flexible Pavements Using Critical Tensile Strain Criterion for the State of New Jersey and Rhode Island	Vivek Jha and Edward Saridaki, Rowan University

Safety
Moderator: Patricia Ott

1:15 to 3:30 PM ~ Auditorium

	Presentation Title	Presentation Speaker
1	Affect of Weather on the Performance of Ka-band Traffic Radar	Dr. Allen Katz, The College of New Jersey
2	Proof of Concept for the Graphic Analysis of FARS Data Using Google Maps	Dr. William Sproule, Morristown Memorial Hospital
3	Analysis of Survey Data of Motorcycle Riders for the Motorcycle Crash Report	Benjamin Powell and Allison Daniello, Rowan University
4	Stability and Accuracy of HCM Level of Service in Darkness and Adverse Weather	Steven Chien, New Jersey Institute of Technology
5	Plan4Safety Crash Analysis Tool	Mitra Neshatfar and Evan Bossett, Center for Advanced Infrastructure and Transportation, Rutgers University

Environment
Moderator: Elkins Green

1:15 to 3:30 PM ~ Room 214/215

	Presentation Title	Presentation Speaker
1	Developing Chemical Emission Profiles for Motor Vehicles in the Northeastern U.S.	Dr. Monica Mazurek, Center for Advanced Infrastructure and Transportation, Rutgers University
2	Heavy Metal Contamination in Highway Marking Beads	Dr. Lisa Axe, New Jersey Institute of Technology
3	Maintenance Interval for Stormwater Hydrodynamic Separators at Highway Sites in NJ	Dr. Qizhong (George) Guo, Rutgers University
4	Impacts and Adaptions to Climate Change	Joanne Potter, Cambridge Systematics